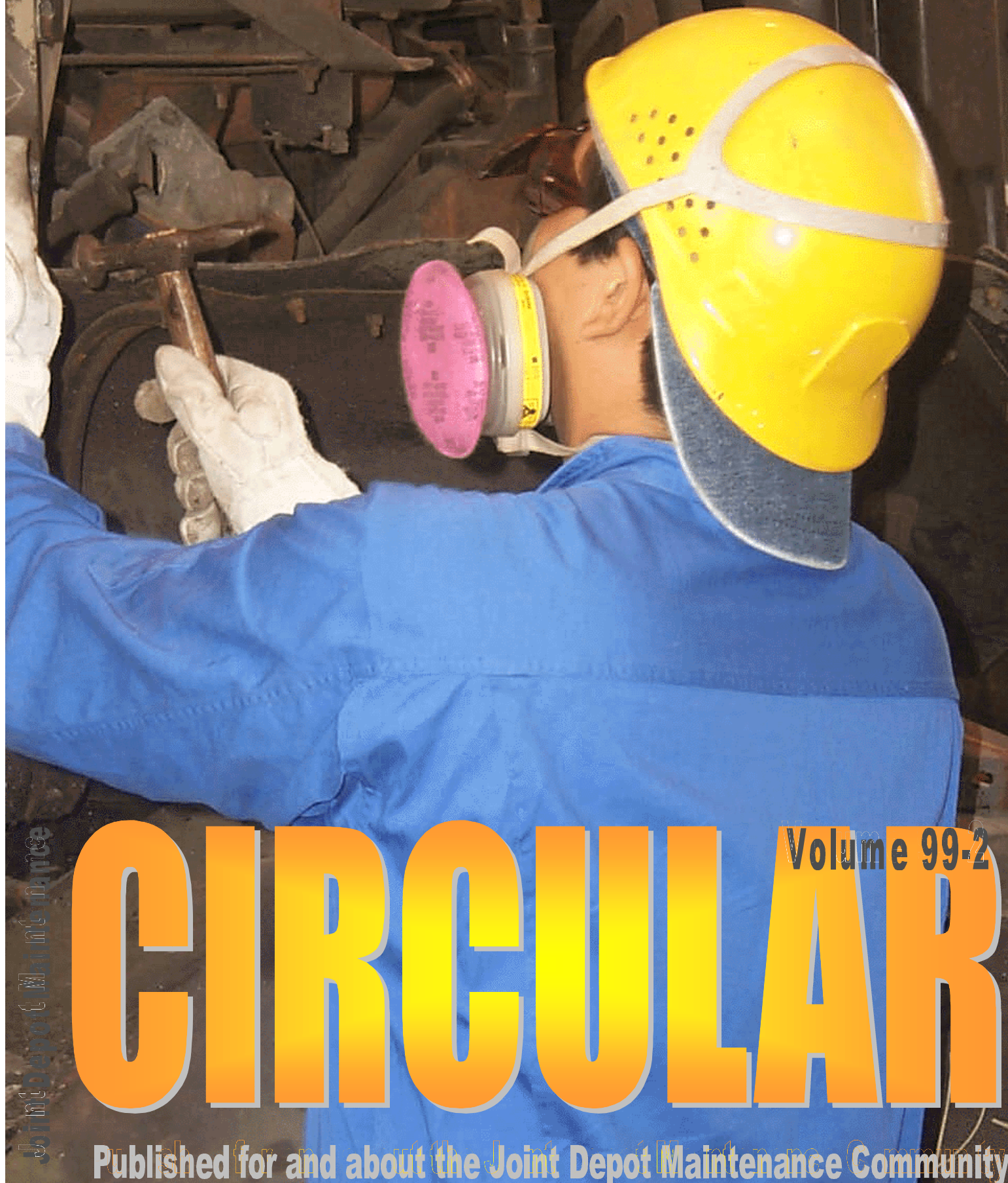


SOMEBODY HAS TO DO IT. Contractor Oshiro Seiko cleans rust from inside a detached door of a five-ton truck at Marine Corps Base Camp S.D. Butler, Okinawa, Japan. See story on page 7. (Photo by Cpl. Barbara Sacerio)



Joint Depot Maintenance

CIRCULAR

Volume 99-2

Published for and about the Joint Depot Maintenance Community

Army manages maintenance workload the Navy way

The U.S. Army has significantly enhanced its management of depot maintenance workload and depot performance by implementing a data system similar to one used by naval shipyards. The Army Workload and Performance System (AWPS) is an adaptation of NAVSEA Logistics Center (NSLC)-Pacific's Navy Workload and Performance Forecasting System (NWPS).

According to Mr. Ken Sherman, deputy program manager for AWPS at the Army's Industrial Operations Command (IOC), the NWPS "reached a level of maturity, which presented a golden opportunity for the Army. Army legacy systems provided wheelbarrows full of data but, due to personnel turnover, few employees knew how to fully utilize the masses of data available. The AWPS was able to put old data to new uses."

NWPS was developed from a project management model where ship overhaul and maintenance consist of a small number of large projects. The Army's model is very different, because the Army has many relatively smaller end items across a large domain.

According to Dan Jensen, director of NSLC-Pacific, "Working with the Army, my functional people have learned a lot about product line management, which, in turn, has helped make our Navy product more flexible."

The Internet-based AWPS is composed of three separate modules. The performance measurement and control module displays actual schedule performance and cost, against

planned schedule and budget. It reveals the projects with the most significant schedule and cost variances. The workload forecasting module stores project data, labor expenditures, work performance data, and schedules. It also supports workload forecasting and "what-if" studies for the current year. The workforce forecasting module shows skill inventory, leave behaviors, attrition productivity, and direct labor. It supports the analysis of alternative employment strategies by recommending workforce levels based on projected workloads.

"The basic reason the Army adopted AWPS was to be able to better articulate the man-hour content of future-year workloads and determine the level of personnel needed to do that work," said Sherman. "

As a bonus, AWPS also gives us a tool for better using the production data that already existed in some aging legacy systems at both depot and headquarters levels. Production status is now portrayed in graphical form and is much easier to access than the pages and pages of printouts that used to be necessary. The production management features of AWPS mainly answer two questions: 'Am I within cost?' and 'Am I on schedule?'. By looking at a color-coded graph, a user can quickly make those assessments."

The system, which has been implemented at five Army maintenance depots, is also planned for installation at IOC's nine ammunition activities.

At the depot level, AWPS provides a vital management tool to installation commanders. It is an essential tool for business planning functions, such as bidding/estimating, project scheduling, planning, and tracking. It allows shop managers to plan and monitor performance against the plan, and it supports planning and control of overhead.

At the headquarters level, AWPS provides the capacity to compare overhead and performance between depots. It allows for "what-if" drills for decreases or increases, base realignment and closure actions, and reductions in force. It also provides an accurate tool to respond quickly to Army Headquarters and higher authorities.

Having supported the development of AWPS, NLSC-Pacific now provides operational support and configuration management services to the Army, as well as weekend pager support. If an Army AWPS system stops functioning, NLSC-Pacific, alerted through a beeper system, begins working on the problem immediately.

According to Jensen, "Our software is very stable, so weekend support of additional AWPS servers is not a problem. I am very proud of the work we provide to Navy and Army facilities."

Sherman, too, praised the Navy's support of the Army, stating that NLSC-Pacific plays an essential role in adapting AWPS to the Army's installations.

"Navy and Army interface requirements are considerably different, which greatly complicates the installation of what some considered to be an off-the-shelf system," he said. Since none of the Navy data sources

PUBLISHING AUTHORITY: Publication of this circular is required by direction of the Joint Group on Depot Maintenance as stated in the mission of the Joint Depot Maintenance Activities Group (JDMAG). No special permission is required to quote or reproduce any article or brief in the *Joint Depot Maintenance Circular*. Submissions and inquiries are welcome. For information call JDMAG, (937) 656-2870/DSN 986-2870, or write to JDMAG/MAT, Building 280, Door 24, 4170 Hebble Creek Road, Wright-Patterson AFB, Ohio 45433-5653. Visit the *JDM Circular* on JDMAG's web site at <http://www.jdmag.wpafb.af.mil>. -- *Cynthia Cox Underwood, editor*

matched any of the Army sources, business processes needed to be analyzed carefully and sometimes changed to assure proper results in AWPS.

The Navy has been extremely supportive of the Army's needs, pushing the boundaries of technology, using the latest data visualization techniques, and distributing information via the Internet. Sherman noted that joint development of NWPS and AWPS has netted savings for both Services, since they use the same web objects for executive and depot-level systems.

Working with the Army has afforded additional dividends to NLSC-Pacific, who in May, won second place in an international innovation contest held by Silverstream in Orlando, Fla. Based on its use of Silverstream to provide graphics reports with drill-down capability via HTML/Java Service Side Business Objects, the AWPS web application was selected ahead of entries from 20 countries.

For more information on AWPS contact Ken Sherman, (309) 782-7089/DSN 793-7089, or visit the Army's AWPS web site at: <http://www.ioc.army.mil/awps/awps.htm>.

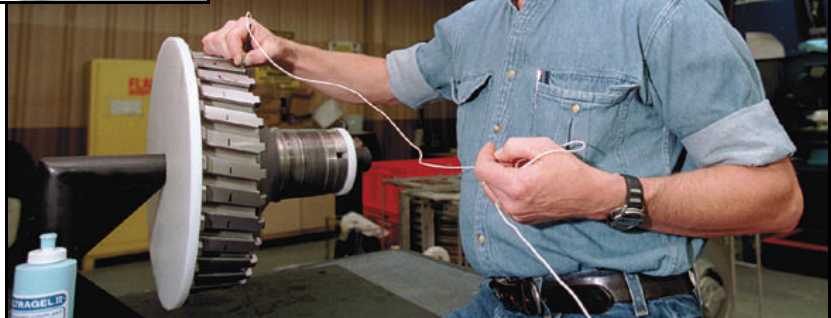
Note: This article was contributed by David Jenkinson, a logistics management specialist in JDMAG's Business Planning Division.

ALC uses shocking technology to find tiny flaws in aircraft parts

The Eddy Current Unit (ECU) at Oklahoma City Air Logistics Center, Tinker Air Force Base, Okla., is using some “high-tech” machines to do non-destructive testing of aircraft parts for the Air Force.

When a part comes to the unit, it's cleaned, polished, and visually inspected for flaws. Some flaws are removed through polishing; others are detected by one of the eddy current machines, which use a probe that sends out an electrical current. The current reveals the exact length or size of the defect, however minute.

For some parts the unit uses hand-held ultrasonic testers, which are similar to eddy current machines but use transducers instead of probes. “It’s similar to the concept of a depth finder,” said Joe Kwan, a member of the American Society of Non-destructive Inspectors. “... We look for defects that are hard for the eddy current machines to find. With the hand-held transducer, we can get up under ledges better. ...” Afterwards, the whole part goes to an eddy current machine for a complete check.



Tim Leird, an inspector in OC-ALC's Eddy Current Unit, uses a tiny transducer to find cracks during an ultrasonic inspection. (Air Force photos by Margo Wright)

The unit operates 18 eddy current machines; 16 are automatic and used for the F110 and F101 series engines. The remaining two are semi-automatic and used on F100 series engines. “We do the turbine rotor parts for the F110-100/129/400, F101, F100-200/220, and the TF-33,” said production manager Roscoe Elliott.

The ECU also has four semi-automatic Eddy Current-IIC machines. Operators build probe configurations that tell the computer to inspect a part. The EC-IIC machine requires the operator's complete attention to identify the fault by making coordinating marks on the printout.

Frequently, the unit studies the amount of time spent on testing to see if

Checking for flaws on four rotors of the F110-100 takes about 150 hours; for the F110-129, it takes 400. "We're working to bring this time down on the -129," said Elliott. "It has more complex geometries than the -100 series."

The individual probes used on these machines cost between \$500 and \$14,000 each. One probe, the micromanipulator, costs \$7,000 alone. It inspects the undersides of the bolt holes and then adjusts itself to inspect the undersides and flat surfaces of the part. Each probe has its own place in a locking cabinet with swing-out doors. "We probably have a probe inventory valued at \$2 million," said Elliott.

Tests on the bore holes take about four days to run, and tests on the dovetails take about a week. Four machines are dedicated to running nothing but the dovetails, which allows the unit to produce more parts in less time. "We produce anywhere from nine to 24 parts a day from this shop," said Elliott.



With the relatively new computer program, inspectors like Joe Bergen can check the progress and history of any part that comes through OC-ALC's Eddy Current Unit for maintenance.

A computer system, ultimately used to run the equipment and tests, enables the unit to track all the parts that have been inspected.

For information contact Ted Sharp, ECU, (405) 739-2483/DSN 884-2483.

DOD symposium to focus on transforming maintenance operations for 21st century

Make plans now for the Department of Defense (DOD) Maintenance Symposium, which will be held November 15-18 in St. Louis. The symposium is jointly sponsored by the Deputy Undersecretary of Defense for Logistics and the National Defense Industrial Association (NDIA).

Uniquely focused on DOD weapon system and equipment maintenance, the symposium will be attended by military and civilian maintenance managers from all ranks and

Services. Attendees will represent the full range of DOD's maintenance operations, including depots, operating commands and units, and research and industry counterparts. Senior Defense Department officials and congressional representatives also participate.

This year's theme is designed to relate maintenance challenges to emerging technologies that will transform maintenance operations in the future.

See Symposium on p. 7

Navy employee ends distinguished federal career with two top awards

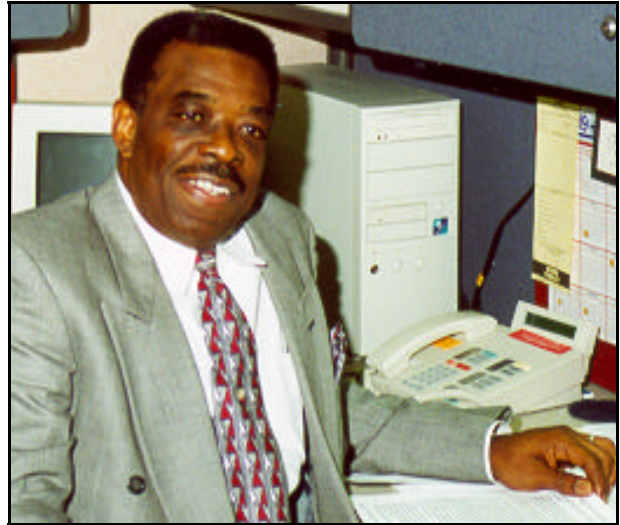
Floyd E. Reed, a GS-13 industrial specialist assigned to the Joint Depot Maintenance Activities Group, ended a 41-year federal career as the recipient of two of the Defense Department's highest awards.

In recognition of his many contributions to the joint depot maintenance community, Mr. Reed was awarded the Joint Logistics Commanders' Certificate of Merit for meritorious service in JDMAG from June 24, 1984 to July 3, 1999. During this period, he was responsible for assembling, analyzing, and reporting on information about the volume and nature of depot maintenance interservice support.

In accomplishing this mission, Mr. Reed supported the development of the *Defense Depot Maintenance Council Business Plan* and numerous analytical efforts conducted at the Joint Chiefs of Staff, Office of the Secretary of Defense, Service headquarters, and Service logistics and systems command levels.

Mr. Reed also received the Navy Meritorious Civilian Service Award from Rear Adm. S.C. Heilman for outstanding and dedicated service to the Department of the Navy.

"On behalf of the United States Navy, the Naval Air Systems Command, and your many friends and coworkers," said Admiral Heilman in a written statement that accompanied the award, "I present this prestigious award for a job well done. I want you to know



Mr. Floyd Reed (Photo by James Gualdoni)

that we are proud of your many noteworthy and far-reaching achievements and sincerely appreciate your loyalty, dedication, and performance."

Mr. Reed served as an enlisted member of the United States Air Force from February 1958 to February 1966 in the supply area. His military career included tours at Hahn and Sembach Air Bases in Germany between July 1958 and June 1962. His Civil Service career, which began in 1966 at Otis AFB, Mass., took him to Richards-Gebaur AFB, Mo., and Scott AFB, Ill., before he accepted an Army position with JDMAG as a logistics management specialist. He was reassigned to an Air Force position in April 1986, and accepted his most recent position in December 1986.

Mr. Reed and his wife Mary Jane (Robinson) live in Huber Heights, Ohio. They have two daughters and three grandchildren.

MARINES IN JAPAN MAKE VEHICLES LOOK NEW

They come in by the thousands, vehicles and equipment corroded over time by nature's blistering elements. However, the streaks of rust that once creased the objects' surfaces are removed within a matter of days. It may sound impossible, but marines from the Corrosion Rehabilitation Facility, Marine Corps Base Camp S.D. Butler, Okinawa, Japan, work on projects like these 6 days a week.

"Our sole purpose here is to refurbish whatever comes our way," said SSgt. Dean E. Arnold, maintenance chief.

Many vehicles on Okinawa age quickly because of the harsh elements such as the ocean's salted mist, frequent rainy days, and scorching sun. This unit works with the Tamaki Service Company to alleviate the "wounds," repairing most vehicles within 5 to 14 days.

By fixing equipment at the base instead of shipping it to the States or purchasing new vehicles, the Marine Corps saves hundreds of thousands of dollars annually, according to Arnold. "Shipping a five-ton truck round trip to the States would cost the Marine Corps \$12,160, and that's not including the repairs," he said. The cost for a five-ton's repairs at the base would be 11 times less than the trip itself. "The bottom line is we save everyone money, time, and headaches," Arnold added.

To make sure the job is done proficiently and satisfactorily, Marine Corps quality control personnel inspect the items through

each of seven stages of repair, from steam-cleaning to the final coat of paint.

During the third stage, the marines remove corroded surfaces, take care of fiber glass work, and rehabilitate the object to its original configuration. "We then undercoat it, remove all the old paint by hand-sanding and apply the primer and finally the camouflage base coat," Arnold said.

Unlike mechanics, who take care of the stuff you don't see, marines in the Corrosion Rehabilitation Facility work to maintain the outside of the vehicles that come through the shop. "The end result is a freshly-painted piece of equipment that looks like new," he said.

For information dial 1-888 and ask the overseas operator to dial 315-622-1011, then

Symposium - Continued from p. 5

The sessions will

- identify the major management issues for maintenance;
- review management and technical solutions in design or development;
- demonstrate technology applications for maintenance management and processes;
- identify needs for new management tools, research, and products; and
- showcase world-class operations.

For information contact NDIA, (703) 522-1820, or visit the NDIA web site at <http://www.ndia.org>.

DOD Cross-feed: JG-PP Project Update

Last October, the Joint Logistics Commanders approved a change to the Joint Group on Acquisition Pollution Prevention charter to enlarge the scope of the group's work to include the Service depots and NASA. At that time the "A" for Acquisition was dropped and the new, expanded group became the Joint Group on Pollution Prevention (JG-PP). Some current JG-PP projects follow:

VOC in Primers and Topcoat (Raytheon Systems Co.): The objective of this project is to eliminate volatile organic compounds (VOC) in topcoats and primers and provide a non-VOC, non-hazardous alternate material for applications using MIL-C-46168. The initiative was started in August 1995, and the first technical block changes were completed in 1998. The estimated return on investment (ROI) is less than four months.

Non-hexavalent Chromate Primers (Boeing Aircraft and Missiles): The objective of this project is to eliminate hexavalent chromium and reduce VOCs in primers that are used on aircraft outer mold lines for various weapon systems. Laboratory testing for the selected alternatives was completed in December 1997, and flight testing, which began in February 1998, will be completed next February. So far, the new primers are doing well.

VOC in Ink/Paint Stenciling (Lockheed Martin): The objective of this project is to eliminate conventional wet-spray coating and brush coatings used traditionally for ink and paint stenciling. Currently, two alternatives are ready for testing. The ROI is approximately 6

months for this project.

Lead in Dry Film Lubricants (Propulsion Environmental Working Group): The objective of this project is to eliminate lead contained in dry film lubricants to aid in assembly and disassembly or antigalling. The joint test protocol for this project was published in October 1997. Testing, which began in September 1998, is currently in progress. The ROI is expected to be 6 months.

Chrome/VOCs in Topcoats and Primers (Raytheon Electronic Systems): The objective of this project is to eliminate chromium in primers and reduce VOCs in topcoats. Stakeholders have accepted the JG-PP qualified alternative, and the process has been implemented.

VOCs in Conformal Coatings and Lead in Surface Finishing (Conformal Coating and Material Task Force): The objective of this project is to develop the guidelines for using conformal coat use and validating low-VOC conformal coatings. The joint test protocol has been completed, and testing, which is under way, should be completed by August. The ROI in industry for this initiative is 1.5-5.3 months.

Hexavalent Chrome (Landing Gear): The objective of this project is to replace hexavalent chrome tungsten carbide cobalt on external bearing surfaces. The landing gear manufacturers and the Canadian National Defense are stakeholders in the project. The joint test protocol for this initiative has been drafted.